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# OBSERVATIONS

ON THE

APPLICATION OF HUMAN LABOUR UNDER  
DIFFERENT CIRCUMSTANCES,

WHEN EMPLOYED ON REPRODUCTIVE INDUSTRY, OR  
FOR NATIONAL OBJECTS, IN VARIOUS PARTS  
OF THE BRITISH EMPIRE.

BY A FIELD OFFICER.



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## PREFACE.

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THE Writer had no wish to intrude his Observations on the public, but some friends requested their publication, which he has complied with, under the hope that some one may make them more useful than he has been able to effect.





## INTRODUCTION.

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SOME friends, for whom I entertain a very great regard, knowing the long time I had been *practically* employed in different parts of the world, in the control and direction of human labour, upon reproductive industry, for the advantage of Government, and also for private persons, urged me to write any observations which I might have made, thinking such might be interesting to others who had not had the same advantages for personal observation, and might not be willing to read larger works on human labour thus employed.

I hope I shall not have occasion hereafter to regret my weakness in yielding to this request ; but, having no personal object to serve, I trust this publication will be pardoned, should the observations not be approved, and that some allowance will be made for the style of composition of the papers, written with difficulty, from infirmities brought on by active exertions on public duty, in a climate far removed from the one in which I am now so perfectly happy, though not yet altogether recovered in health ; but which I hope soon to obtain amidst kind friends, and the scenes of my youth.

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## OBSERVATIONS.

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I. It is wished to confine those remarks to such as have appeared to be facts, on personal observation, although it is possible, on some occasions, I may have been misled by want of talent for observation, or from confiding too implicitly on the testimony of others, where I could not *personally*, and carefully have made all the observations now submitted. But there being no wish to deceive any one, pardon may be hoped for, should these observations be found dull, and the explanations tedious; for they are printed under no wish to obtrude them, either upon the public, or upon indulgent friends.

II. The term *human labour*, with reference to its reproductive consequences, appears to have been used by some writers, under different meanings, though generally implying *some degree* of physical exertion of the human body, under the influence of mind, and that, under different degrees of intellectual cultivation, producing, therefore, very different results. During the direction and control of human labour in different states of society, among different races of men, and in different parts of the world, the following observations occurred to my mind, and in now stating them, I am not aware of being under the influence of any selfish or interested motives, to mislead the judgment; but I am aware that the judgment of any person may be impugned, as being under the influence of prejudice, and, therefore, that these observations may also be impugned as having been made by a mind under

that state. It is therefore at the risk of being deemed tedious, I have stated facts which, I believe, are generally admitted to be such, with reasons for the observations submitted. And if these reasons should not be satisfactory to the reader, he will of course be uninfluenced by them, and will look out for some other facts more agreeable to him, and which he may also think more applicable to the case under consideration. Having had to serve a long apprenticeship in the service of Government to this kind of mental discipline, not the least objection thereto can be made by me; for, even if made, I know well that such objections would not be removed by any thing I could say. For a long time, I had frequently to shew to one of the kindest of men, and an able Secretary of State, what my practical observations had been on human labour, employed on reproductive industry in the creation of national wealth; yet I observed these observations had to yield to the opinions of others, whilst measures were constantly in progress, under the influence of a vague principle considered to be *that of public opinion*, which ultimately produced a change in the distribution of twenty millions of wealth, in the first instance, and impeded the creation of much additional national wealth, from human labour, because the proper cultivation of the land in the West India colonies afterwards was not ready prepared: a circumstance caused by a deference to public opinion, which appeared to be the expression of the *wishes* of those who understood how to act by the best means for influencing this opinion, called also that of the people, legally expressed by a parliamentary majority, and, therefore, in conformity with the British constitution, which I was bound to support. Therefore, whatever I may have thought at times, privately, I could not allow the saying of Phocion, respecting public opinion, to guide my public duty. It is, however, to my friends known, how much I have lost by an adherence to opinions carefully formed from personal observations, when they were contrary as mere opinions, of those persons under whom I acted as a public servant; of which, however, I make no complaint, as my superiors were

the persons responsible to the public for their own opinions, and not any person serving under them, whose firmness, doubtless, appeared only as the obstinacy of a prejudiced mind.

III. Circumstances, which I cannot controul, oblige me to note down these observations in a more unconnected manner than I could wish; but this excuse will not be accepted as a reason for delay.

IV. Very different results were observed in the reproductive effect of human labour, when only one person sometimes gave freely his individual exertion of body and mind, in the production of a mechanical effort, when compared with the result produced by a combination of individuals; so that, for example, ten men, working together, did more than ten times the result of one man working alone. And a still greater difference was seen, when men obtain machinery to aid their exertions of mind and body; —although the moving power of such machinery might not have been human beings, but elements affording mechanical power, such as water, wind, fire, steam, &c. This observation, at first, may seem to be entering upon a different subject, and, therefore, I shall endeavour to hold such observations in abeyance, referring my readers to those authors who have professedly written on machinery, operated upon, by the human power of a muscular lever, acting mechanically against the ground, the power thus being derived from the gas fixed by human respiration, which makes it necessary to have its tone renewed at intervals, as otherwise it would end in the exhaustion of the human power of muscular action.

V. A great difference has also been observed in the results of the human labour of men working with equal degrees of vigour, as shewn in the result by the strength of the muscles employed, and the capacity to prolong the exertion necessary to effect a certain result.

M. Coulomb, an officer of the French corps of Engineers, has

furnished some observations on the measure of human exertion in permanent effect, equal in authority to these personal observations; for example, in driving piles by raising a weight, called a ram, of 42 lbs., drawn up by human labour  $3\frac{1}{2}$  feet, 20 times in a minute, during 3 hours, which he calculates as giving a result in permanent effect of 530·000 lbs. But the drawing up of a *double* bucket of 35 lbs. 120 times, from a depth of 150 feet, would be only, in permanent effect, 518·000 lbs., yet both were done with what he considered the same degree of human exertion. And that a skilful labourer in the field, working with a large hoe, he considered as producing a permanent effect equal to 728·000 lbs.; and, generally, that the force of one man was equal to raise 10 lbs. 10 feet in a second of time, for 10 hours in the day; or 100 lbs. for one foot, in a second, for the same period; and this computed in imperial gallons of water, would be about 360·000 gallons; and upon such data applied to a horse, his power would be equal to five men. In the case of men, however, the human force not only varies with the power of muscle, but his power to endure it, as to time, must vary greatly, so that, although the term of one day's labour is convenient for calculation, yet the reproductive results may vary greatly when applied to the cultivation of land, to produce food. Indeed, in calculating and comparing the value of any moving power, whether human or animal, or furnished by the elements, it is usual among statisticians to assume what is considered as the mean effect of the labour of an active man, working to the greatest advantage; for which, and other information, the reader may consult Mr Amontons, Bulfinger, Parat, Euler, Bossuet, and particularly Coulomb, to which may be added many valuable English authors, like Sir John Rennie, and the work of Buchanan on Mills, which he edited; Dr Thomas Young, &c, &c.; and as the information there given can all be repeated by experiments, I consider them equal to the observations given by any credible witness on his personal testimony.

VI. The readers of papers, like the present, sometimes wish to

know how our ancestors acted under similar circumstances, and I regret that I am unable to convey much information on the matter. But in 1352, in the reign of Edward III., after a pestilence and famine, an act was passed for the regulation of wages to the labourer, the policy of which seems to have been very doubtful ; but from this act it may be gathered, that it was then considered desirable to regulate the rate of wages by the price of wheat ; and that in 1455, in the reign of Henry VI., from another act, it is observable that wages had risen in a greater degree than the money price of wheat had risen. Of late years we have had, from Parliamentary reports, much information as to the rate of wages, at home and in other countries, given to labourers, both in agricultural and manufacturing employments, respecting some of which I am able to speak from personal observations, having been employed officially to collect information thereon. At present, it seems only necessary to draw attention to what has been said by Hume the historian, in speaking of the destructive pestilence which prevailed in the reign of Edward III., which is said to have swept away nearly a third of the inhabitants of every country which it attacked, and to have been more fatal to the inhabitants of cities than to the agricultural population, but we have not sufficient information to enable a judgment to be formed, how far the greater mortality in cities might not have been influenced by imperfect sanitary regulations. The deaths in the country would, as Hume observes, seem to have been magnified ; for 50,000 persons are said to have died in Norwich alone, whereas, in 1377, it would appear, from an enumeration list of persons, liable to the poll-tax at that time, that Norwich had only 6000 inhabitants ; yet, by recent population returns, it appears that, from the labour upon the land in its vicinity, not less than ten times that number are now supported,—a fact to which the attention of the reader is requested, as occasions may arise for the statement of other observations, where the number of the human labourers have increased and yet are supported from cultivating the same extent of soil. We are not able, however, now to state how far the extent of the land was increased when Nor-



wich, in 1403, was made a county of itself, nor whether the land was then as capable of cultivation as when a greater population was supported. This want of information impedes inquiries into other matters, where it is wished only to observe, and to record useful facts, admitted to be such generally. In this dilemma, I have recourse to the authority of a benevolent Quaker, who has published some observations on the circumstances which influence the condition of the labouring classes of society; and Mr Barton's object apparently being like my own, it has afforded me great pleasure to express myself sometimes in concurrence with him, and where we differ, I have always found reason to think, that he was under the influence of good feelings. With this preface I hope the reader will pardon my stating, on the authority of the observations of John Barton, that about thirty years from the time in which he wrote, viz., 1817, that in the parishes of Halstead, Bocking and Coggeshall, there was a flourishing woollen manufactory, the proprietors of which ceased to work it, so that, of the human labourers, to the amount of 803 families in the parish of Halstead, not less than 434 persons became *paupers*, although the population did not diminish in the same degree, though the food and subsistence of the human labourers were affected by the withdrawal of about £13,000 annually being no longer paid as wages. In a report from the Select Committee on the poor laws, with minutes of evidence ordered to be printed, 4th July 1817, on the 10th April 1817, a person being in the chair, whom I personally knew to be a fair-minded man, who had himself done much for the welfare of the poor, the late J. C. Curwin, M. P., the statement made by John Barton was confirmed respecting this very village of Halstead, having 4698 acres of land, and a population of 3279 persons in the county of Essex, wherein I had resided for some years; and the rental was considered to be upwards of £4000 *per annum*, and in which the poor rates, from 1786 to 1816, had advanced from 9s. 11½d. in the pound, or about 7s. 6d. *per acre* to 18s. 4d. in the pound, or 13s. 10d. *per acre*, corn having been dear during two of the years. There was also distributed £400 from

public charity, collected in the place, and £266 from other benevolent sources. About thirty or forty men, during a part of the year of the harvest, till Ladyday, were *without demand for their labour*. There were many friendly societies in the parish, and the effect of them was good, and the general character of the poor was good also. The poor rates are paid by the occupiers of houses and lands, some of whom are nearly as badly off as the paupers. Of 194 names paying the poors' rates, 96 of them were assessed at about only £5 *per annum*. We come, then, to the important fact that the extreme pressure of the poor rates *reduces the value of the land*, a fact at present generally believed, and, to some readers, my observations must have appeared tedious, as perhaps will also the general observations respecting human labour, in a state of society such as we see in Great Britain. In those parts of Scotland, where the old feudal tenures had prevailed, and the value of land was estimated by the number of retainers that could be kept, matters were not better for the human labourer than in Ireland, when the system of tenure called Rundale prevails, of which Lord George Hill has given an account, as Lord Selkirk has given of the effects of the other in the Highlands. When, in the performance of my public duty, the Highlands were visited, some of the observations then made may be recorded. In each section of the Empire, however, and even in England, *we find pauperism existing*; and after all that has been said and written on the subject, *the remedy must be found in the labour of the poor themselves, assisted by those who, in the distribution of the gifts of providence, have obtained the greater share of the land as property*, and it will be for a wise executive government to suggest what help is to be *farther* derived from the aid of those, whose wealth has enabled them to make the work of human labourers more reproductive, by giving them the aid of the mechanical power to be obtained from the elements and machinery, under the guidance of science, capital, and skill. It is to be pointed out by those in power, how human labour can be made reproductive in the best manner *to lessen crime, and improve the mental powers of the labourer by instruction, as well*

*as his bodily power, by a due supply of wholesome food, in healthy habitations.*

VII. What other persons had written respecting the Highlands of Scotland, and what they had observed, became objects of inquiry when public duty obliged me to go there. Among these was an engineer officer, (Burt,) who had been employed by Marshal Wade in making military roads in the Highlands, exhibiting the application of human labour to a beneficial object, though it was a *military* one, intended to facilitate the invasion of the Highlands, in case of insurrection. On that occasion, however, was witnessed the consequences of neglecting the best principles of conducting human labour, made applicable to the defence of a country. Any person can understand that during the actual encounter of one armed body of men against another, that body which has the most powerful weapons of destruction, and the most rapid means of moving its columns in action, must have a great superiority over the one deficient in these powerful aids to human exertion.

Every one, therefore, on visiting the field, or moor on which the battle of Culloden was fought, must be struck with the want of knowledge in the commander of the Highland soldiers, in selecting such a battle ground for his men, who were chiefly armed with swords, having few cannon, and fewer cavalry, to act against the Duke of Cumberland, with a well-appointed force of artillery, and supported by some cavalry. The result is seen in the numerous green hillocks over the graves of the brave men who fall in that battle.

The object of these observations is intended to bear more upon human labour applied to reproductive industry. And a reference to the book of the engineer employed by Marshal Wade will shew what that officer had seen in Lochaber and near to Fort William, mentioned in his 20th letter, where, many years afterwards, in 1846, I had seen the finest crops of hay. On this occurrence, many observations may be made. Such as that the Highlands of Scotland have a cold climate, and the hills a thin covering of soil, though the

valleys frequently have a good soil. Much grass, therefore, springs up in the early part of the year, when the means exist for feeding and breeding more cattle than can then well be supported during the winter. At one time, the existence of markets were remote, and the insecurity of property was such, in the ordinary traffic of selling and buying, being attended with so much hazard, that the owner of the land and crops, to obtain security, was obliged to distribute what food he could not use in his own family, among retainers, so that the greater their number was, he considered himself the more secure, as well as those who could procure his protection. In other words, the lands were held upon a bad tenure, then common in the feudal ages. On the legal abolition of these tenures, still the customs and habits which had been generated thereby long remained in the Highlands, greatly retarding the profitable application of human labour to reproductive industry on land, in this part of the United Kingdom. And, were any one cause more influential than another to be put forth for the improvement of agriculture, it appears that the existence of such men as the late Sir John Sinclair in the Highlands, Mr Coke in Norfolk, and Mr Curwin in Cumberland, ought to be brought forward; for Sir John Sinclair, in Scotland, certainly first shewed how food for animals could be raised in spring and summer to support them during the winter, by cultivating the land in a more judicious manner; whilst the laws of the land became more powerful for the protection of private property, which enabled distant markets to be frequented without hazard, and on good roads, with greater facility; whilst green vegetable food fattened more cattle, producing more manure, thereby rendering poor soils more reproductive under human labour, further increased by improved agricultural machinery, and the use of animal power, in oxen and horses, &c.

VIII. Whilst on this subject, I may express what I observed in another part of the world. Large tracts of land in America are also held by individuals, where no such tenures prevail as those

of feudal times. In the United States of America, for example, the colonial charters, granted to the States, whilst even they were dependent, as colonies, upon Great Britain, put an end to every thing like feudal tenure, by the clear and express terms in which proprietors of land held the soil, as *property* from the Crown. These tenures were respected when the colonies became the independent United States of America. Here, however, varieties of results were to be seen in the application of human labour to the land in reproductive industry.

In the Eastern States much surplus food was raised, which found a market, both at home in the United States, where they are anxious to encourage *manufacturing industry*, and in foreign countries not having a soil so fertile and productive. In general, I observed *free men of the Saxon race* employed in thus procuring by their labour food from the land, and fish from the sea. But, in the Southern States, I observed large tracts of land held under a similar tenure,\* and also cultivated by *human labour*, but producing cotton, tobacco, sugar, &c., and the human labourers being generally of the *African race*, in a state of slavery, also producing food for their own subsistence,—that of the proprietors, and of the cattle kept to carry the produce to market, and to raise manure for cultivation. There was also another distinct feature. The human labour thus employed in reproductive industry on the land, in the United States, raised articles, as cotton, which had to find a market for its sale in foreign countries, chiefly in Europe, whose climate was not suited for their growth, thus enabling the Government of the United States, in some measure, to influence the human labour employed on machinery in Europe, as appeared to me, when I was employed to investigate the employment of human labour in Manchester. By this mixture of products, the United States were enabled to draw capital *accumulated* in foreign states, to a greater extent than

\* The State of Rhode Island has now still the same constitution granted to it by charter from Great Britain in 1663; which, therefore, may cause some peculiarities, probably originating in Roger Williams' religious views, when he settled Providence Plantation.

if they had devoted all the human labour of the nation to the raising of a superabundance of *food only* as articles of exchange, and, with this *accumulated capital*, the nation was enabled farther to encourage their own manufactures, and increase their dominions, by what they call *annexing* to the Union such territories adjoining, as they may wish, by introducing a few of their own inhabitants to form a political party, and then apply to be annexed, —a mode of conquering a country, and obtaining territory, which does not seem to have been acted upon by former nations. Occasionally they change the word expressive of their desire to obtain the lands of other nations, by becoming *sympathisers*, as in the case of Canada; seeming to overlook the awful consequences to the Union, if other nations were to sympathise, as they are inclined to do, with the feelings of a large portion of the population of the United States, now held in slavery, and of a different race from their owners. A war of *castes* would be dreadful in the United States, and many of their most eminent men are fully sensible of the consequences, but the majority, overlooking the awful consequences to the Union, have such an overweening opinion of their national power and of their wisdom, by encroaching *gradually*; as to hold the idea of danger to be perfectly ridiculous, though I succeeded in making some, of even those, alive to the danger, with Jamaica and Hayti lying on the flanks of the Southern States of the American Republic.

IX. Having had occasion to note the observations above made on the principles which the Government of the United States considered themselves justified in adopting, to obtain land for the extension of their dominion, but which it appeared that other nations could not approve, I am aware that some persons imbued with republican feelings may here impugn these observations as resulting from a prejudiced mind against the *Republican Government* of the United States, which I disclaim, and, therefore, I now proceed to note the observations made on their system of educating the mind of the human labourer employed on reproductive

industry, as nearly all the younger population of the agricultural labourers receive school education from the early appropriation of public land to that purpose, increasing the powers of observation, and imitation in the working classes of society in the United States.

In the city founded by Penn, and inhabited by Franklin, and in which the Declaration of Independence was read in 1776, I observed, without counting the pupils of charity schools, upwards of 5000 pupils receiving useful instruction in reading, writing and arithmetic, in the schools of the State Government, and there is probably many more at this time, though much less than in New York, having 441,856 children. In this large city, having religious teachers in the persuasion of the Protestant and Episcopal Church, of the Roman Catholic, Presbyterian, Reformed Dutch, German Lutheran, Swedish Lutheran, Baptist, Quaker of different denominations, Covenanter, Universalist, Jews, Swedenborgian, Moravian, Menonist, Unitarian, and some others, yet I did not observe that any peculiar dogma of religious faith was pressed on the young minds of these pupils; but a strong impression was made on my mind, from all I observed, that the greater part of them would become Unitarians, in their religion, as it was intended they should become republicans in their political opinions,—such being those of the State Government, and which, encouraging a levelling principle, the line of education was not higher than has been mentioned, at an expense to the State, or about 12s. 6d., for each, *per annum*, in Philadelphia.\* It was observed, that all these children were the offspring of white parents: that the munificent bequest of the late Stephen Gerard, for the education of poor children, is also confined to the same caste; and that children of the African caste were much neglected, even in the degree of education given so generously to poorer whites.

\* By the school law in the State of New York, a sum is assessed upon the inhabitants equal to that apportioned to each township; at a town meeting double that amount may be raised. In one year the towns raised by tax upwards of ten thousand dollars more than was required to entitle them to the public appropriation.

X. The mind of the human labourer on agriculture in America is more called to scientific and mechanical acquirements than to those which I have noticed in our English national schools; and it is due to the American Government to say, that their intentions have been ably seconded by the American nation, who, though not deficient in other branches of useful knowledge, yet certainly devote their mind most to mechanical and agricultural pursuits; and their success in both has been very great.

Yet, even, with reference to the exclusion of the African race from the instruction given to other labourers in reproductive industry, it appeared to me, that the extreme of freedom, in conformity with the American declaration of independence, could not be practically reconciled to declarations settling our constitution at the revolution in 1688, because in England, the national Church, which is Episcopalian, and many of the dissenters enumerated, would equally object to their children being brought up, at the early age for attending school, without some definite knowledge of the doctrinal truths contained in the bible, and our catechism, and, if so, by whom are they to be taught? In America, particularly, it is observed that the class of teachers who devote themselves to the talent of extempore oratory in preaching, and teaching, are Unitarians; and that even amongst the descendants of the pilgrim fathers of America, the zealous nonconformists of a former age, when in England, Unitarianism is now making many converts. If the feelings of an Unitarian father are to be respected, by not allowing the pastor of any specific religion to be the medium for conveying instruction to the young minds of his children, the parents of *other* persuasions, it is supposed, would feel themselves entitled to have the same indulgence, which would end in excluding the bible, as the means of instructing the youthful mind in certain duties observed in civilized society, in which many parents would be anxious to have their children instructed, as they had been themselves in their youth.



XI. To meet these objections, it seems necessary that those charged with the public education of the poor, should decide on what branches of knowledge the Government will be willing to pay for, from some general fund. Suppose, for example, that the art of reading, and writing, and arithmetic should be decided upon. In the schools of the Benevolent Society of Holland, wherein Jewish children are received and taught with other children, the plan which I observed at Frederick's Oord and Veenhuzen, in the province of Drenthe, was this. In certain branches of knowledge, the children of all creeds attended in one common school, according to their age, sex, and acquirements, where a person began his instructions in the Dutch language, *viva voce*, by producing the name of a thing in large printed letters, and a picture of it, to all the children assembled in classes. Suppose the word to be "nut-ton," and the drawing the representation of a sheep, the two syllables of this word in Dutch are slowly pronounced by the teacher, and repeated by the assembled class. Then, each child having already learned the name of the letters of the alphabet, slowly repeats the letters which spell the word, and an examination goes on to ascertain that each pupil clearly understands how to divide the word into syllables, and how to spell it by letters. The class advanced to be able to write, also write the word, and shew up their slates. The picture of a sheep is again produced, and a repetition of what the pupil had been previously taught, *viva voce*, given by each pupil; the teacher next shews to what useful purposes the sheep is applied; and if it be fed upon any thing raised from the ground, the pupil is required to name it, and produce a picture of it, which pictures are always at hand, pronouncing its name syllabically, and afterwards by letters, and then repeating verbally what previously may have been told to him, the whole class doing the same. Thus repeated examinations are gone through, till the class is considered to be perfect. In like manner other words were taught, till a sentence be completed, thus constantly teaching the mind the use of things, as well as their names, and the mode of spelling and writing them.

Geography, history, and the use of the maps, were taught by a similar plan, and, in a short time, moral truths followed, particularly such as were deemed the most important for the pupil to understand, causing in the mind reflection on the necessity of *foresight* and *self-restraint*, and that his success in life will chiefly depend on himself, and the blessing of God on his virtuous exertions. But for all religious instruction a separate time was selected, at which parents might be present if they chose; and here only the pupils, whose parents were of any particular persuasion, were instructed, at the same time, by the religious teacher of the parent,—Roman Catholics, Jews, those of the Dutch Reformed Church, being each separate, and in a separate room, notwithstanding the expense caused, as it was found to be the best mode of producing satisfaction.

XII. I observed that, after speaking of the uses made of things by the teachers, when the means existed, that the pupils, when dismissed, went to the building where the manufacture of the article was being carried on. After the instruction connected with mutton, was wool, for example, and its manufacture, by spinning, into threads, and weaving it into cloth, or knitting it into stockings and gloves, was examined; the mind of the young pupil being obviously set to work, from the farther questions asked, or descriptions given.

On one occasion I became the scholar of an intelligent Dutch boy, after a lesson on "*spurry*," of which the reader may only know, as I then did, that it is a noxious weed in the ground of the English farmer, but in some parts of Holland it is carefully cultivated as a provender for milch cows, from being found to increase their milk, and improve the quality of the butter; but what interested me most, was to observe that the young lad had fully comprehended the reasons why he, and others, were employed in breaking up bits of dry moss, to strew in places where the cows had dropped what the pieces of moss were intended to absorb; and, when mixed with other matters, made a large compost heap

of manure, which again increased the fertility of the land, and augmented the means of feeding the cows to give milk and butter, and fatten pigs—forming part of the food of the pupil. And I certainly felt, that if Lord Bathurst, or Sir Wilmot Horton, had examined me in London previous to sending me to Holland, that I should not have been able to give an account of the use of *spurry*, so intelligent as that given by one of the pauper boys to me, who had begun his education merely under the system of Major General Van den Bosch; and I was still more pleased with the youths taught at Wateringén, where I found the young men who had been taught surveying, also had acquired some knowledge of chemistry and natural philosophy, as made applicable to the cultivation of the land by human labour; some of them even had a slight knowledge of descriptive geometry, and were able to explain the principles of machinery applied to aid the force of human labour. To this branch of knowledge the government of the United States of America pay great attention. On one occasion, when I visited the Military College of the United States, at West Point, I was requested by the Board then assembled, to examine one of the young cadets; and upon acceding to their wishes, I asked one of the professors what progress the young gentleman had made in mathematics, and then begged him to conduct the examination in the mode to which the pupil had been accustomed. The subject was the demonstration of a property of the epicycloid, or that curve generated by a point in one circle, which revolves about the circumference of another circle, of which there are exterior and interior epicycloids. On the young gentleman, (Mr Mahan,) finishing his demonstration in a neat and satisfactory manner, I put some questions about the use of the properties of the curve mentioned, as applicable to the machinery of parts of mill-work, and I found him perfectly instructed as to its application to the cogs of wheels as taught by mathematicians. After the finishing of the examination, I found, also, he was not ignorant of its application to the rotatory motion of the fly-wheel of a steam engine directly from the piston rod, without the intervention of a connecting rod. In

after life it afforded me much pleasure to renew my acquaintance in England with some young gentlemen, whom I had seen in the same military academy at West Point. They were travelling in England as officers at the expense of the United States of America, with other gentlemen under similar circumstances, of which, I fear, the like example could not be produced by our Government; for I hope I shall be pardoned for stating, that my travels were always at my own expense. From Captains Mordecai and Huger, I have received interesting communications since their return to the United States.

XIII. It is here I may mention the result of a visit which I paid to the keeper of the Patent Office in Washington, then held by an intelligent Englishman, who had imbibed strong republican opinions, with his opinions as a Quaker, and with much of the science of his relative, Dr Lettsom, an eminent physician in London.

Observing that my friend, who had charge of the public office for patents and machinery at Washington, with whom I spent much of my time, on one occasion used more ceremony than appeared necessary, I found it was to prepare me for a quiet dinner-party at his house, and where Mr J. Q. Adams was to meet me. I frankly asked my friend if any thing particular was then likely to occur, and then I learned Mr J. Q. Adams himself had requested it; but, from some infirmity, he was in the habit of taking a short nap after dinner, and, therefore, he wished me to be told thereof, and that it was not from any want of respect to the company. This being quickly settled, I had the honour, for such I considered it, to meet Mr Adams, universally considered to be one of the cleverest men of the United States, to which, from my own personal observation, I would add De Wit Clinton, after I had had the honour to meet many of their able men, from the President downwards; but two persons like Mr Adams and Mr De Wit Clinton are seldom seen any where with minds fully stored with information, and, at the same time, so ready to communicate what they know to other persons. It was for me to follow the

line of conversation which Mr Adams might be pleased to introduce. When he had finished his nap, he was pleased, in the first place, to enter on the subject of the great obligations which the United States were under to England as the first settlers of the country, because the language of England became also theirs, as common property, with English literature;—and that the United States were indebted to England for that peculiar feature in the American mind, and of which they were, in his opinion, justly proud, viz., their being the first people to conceive that form of administration denominated “self government,” which, in Mr Adams’ opinion, is destined one day to influence the rest of the world; nor did he profess to be unaware of the evils which must precede the death of all other systems of government; yet such an euthanasia as that, through which the United States had passed, was not considered by him any more matter for regret, than that such a constitution had arisen for Great Britain after the expulsion of the Stewarts from the throne of England. It is not, however, my object to state opinions in which I could not always concur; but conversation led to the subject of the formation of rights of property in land in the United States of America, after the rights given by the Sovereign of Great Britain, acknowledged by the constitution of the United States. Much importance was attached to rights of purchase from the Indians, after the example of William Penn, when he is said to have purchased from the aborigines the land on which Philadelphia was built. To which I observed, that in the performance of my military duty, I had resided much amongst the Indians of South America, and thereby had obtained some knowledge of their habits; but among people in their backward state of knowledge and civilization, I had not observed them to possess any correct idea of those circumstances, which, in more civilized society, are considered necessary to regulate the fair principle on which exchanges are made between individuals, or bodies of men having property to exchange with each other—my experience shewing me, that the poor untutored Indians would give any

thing in their power for any other thing which may have pleased their fancy, at first asking a musket in exchange for what they at another time would ask a bright button, so that I could not consider it a fair exchange to take a large portion of land, or the privilege to occupy it, and cultivate it, in return for a few blankets and hatchets. Thus considering the untutored children of the forest altogether ignorant, when dealing with the good and benevolent William Penn, I could not consider the transaction in the light of a legitimate bargain, and still less when contracted between the same ignorant Indians and a class of men whose moral notions about the mode of obtaining the right to land appeared to me very loose; and, in case of any dispute between those Indians, and the purchasers of their land, I saw no equitable court of appeal to which the weaker party could apply, with any hope of obtaining justice. But the United States having taken possession of these lands, and having considered them public property, to be appropriated for public purposes amongst the different States of the Union, as common property, therefore no foreign power may now be entitled to interfere with the different States as to their apprehensions relative to the appropriation of the unsettled lands in each State; but the case becomes different, should, under the name of annexation, or any other, the United States extend their claims to other lands, not making a portion of the lands declared by other nations to be a part of the United States, and which has already given occasion to some altercation.

After shewing that England had put an end, by her charters, to the system of feudal tenure in the old colonies, now forming the United States, yet retained the seignorial rights in Canada, Mr Adams considered the Commonwealth of England had had the greatest influence upon the laws of the colonies now forming the United States, where the people had always had the election of their own houses of Assembly, and were virtually formed by Great Britain herself with the spirit of republicanism, which they still retained.\* But to the Southern States, England had bequeathed a great error,

\* *Vide* note to p. 16.

in the establishment of the African race amongst them, and in giving them human labourers in a state of slavery ; which latter evil being mixed up, both with the rights of property and the profitable cultivation of the soil in those warmer parts of the United States, this error will ultimately seriously affect the interests of the Union, under the influence of a principle so powerful on the human mind as self-interest,—a principle forming the basis of self-government.

I now began to perceive why my friend had pressed on me the honour to partake of a quiet family dinner, where, in return, I was now requested to answer some questions rather difficult. After a short discussion on the great interest which the United States and Great Britain mutually had in being on the most friendly political terms, on account of the great good they could do each other ; but, if at variance, each had the power to inflict on the territories of the other most terrible miseries ; for it was clearly perceived that Great Britain having freed her own slaves, always held the power of creating a *servile war* between different races of men in the United States. One of the first subjects connected with the conversation, being on the power of the Saxon race to endure the exertion necessary for reproductive industry, in the cultivation of the soil in the torrid zone, and the Southern States of the Union, and which admitted of an answer, under considerable qualifications, as to elevation of the soil above the level of the sea, affecting the temperature like distance from the pole, the kind of labour, and the degree of human exertion, also modified the question, ending, however, in the general statement made in paragraph IV., page 9, as to the unequal duration of the exercise of the human labour in individual cases.

XIV. The facts now to be stated do not admit of mathematical, or as satisfactory a kind of proof, and are, therefore, to be received by the reader as subjects for farther inquiry, rather than the observations of one individual, but which certainly tend to confirm the common opinion that the Saxon, or the white race of men, from being more subject to peculiar forms of disease in very warm climates, is

less equal to continued exertion in cultivating the soil of the torrid zone, or very similar climates, than the African race of men, the structure of whose frame and physical formation, rendering them less liable to those febrile forms of disease which shorten existence, or terminate it, with the white race. Why this should be the case I leave others better qualified to explain. The fact is merely stated here to have been often observed by witnesses who have no object but to state the truth. Dr Robert Jackson, who was a vehement enemy to slavery under any form of government, in his treatise on fever, gives the result of his personal observations in the army hospitals of the West Indies, confirmatory of the fact mentioned, even among soldiers, when not exposed to the action of the sun more than the regulations of the service sanction. But besides the action of the sun upon the two different races of men, another cause, producing disease in a greater degree among the white race, is founded upon certain local circumstances, where the black race are observed to thrive, and the white race to deteriorate, within the tropics. Even in the Southern States of North America that peculiar vitiation of the atmospheric air is known, whose name of malaria is borrowed from Italy: it has indeed another from the Greek—*miasma*, but neither gives us any certain knowledge as to its cause, though we are unfortunately well acquainted with its effects on the duration of life; lessening it among the white race of men, whether in the rich rice fields of Carolina, the sugar fields of Louisiana, in the solitary Campagna of Rome, or in the Pontine marshes; nor does the margin of our magnificent lakes in Canada altogether escape, though the effects on human life are much less fatal there.

In directing observation to any inquiry connected with the reproductive results of human labour, in cultivating the land to produce food, it is impossible to omit what a distinguished agriculturist, the secretary of a former board of agriculture, says in a tour in Ireland, vol. ii., page 120, that the same portion of land in Ireland, when planted in potatoes, would yield *four times as much nourishment* as could be obtained from the cereal gramina of a crop of wheat.

This statement at once leads the inquirer to ask respecting the



peculiarities of the soil, and climate, and he, probably, like myself, may retire with the conviction, that neither greatly differs from parts of Great Britain, except with greater humidity of the air, and in the greater proportion of bog or moss forming the surface of the soil in Ireland.

Having had the advantage of personal acquaintance with parts of Scotland, where moss land prevails, I have observed the immense congeries of vegetable matter in wood, aquatic plants, &c., which must have existed in former generations, and where ruins are observed in some mosses. Dr King in his account of the Irish mosses, mentions several instances, where there appears the clearest evidence of their recent origin. I name one: "There are many bogs of late standing in Ireland. When O'Donnel and Tyrone came to the relief of Kinsale, they wasted the country, especially as they came through Connaught, which, by means of the Earl of Clanricarde, was generally loyal; and there is a great tract of land, now a bog, which was formerly a ploughed field. There remains the mansion house of my Lord in the midst of it." Rev. R. Rennie on Peat Moss, page 78. I greatly regret being reduced to the necessity of quoting a circumstance, the truth of which I could not *personally* observe, and therefore I cannot vouch for the statement made by other persons, but I trust it will be obvious that no intention to mislead, or to misrepresent the truth, exists on my part; and that I will be pardoned for referring to my own personal observations in Holland, where, in page 21, I observed the effect of moss in a certain state, used as manure, and applied to the cultivation of a grass, which, in England, was considered by me, from my own ignorance, as a noxious weed, until I saw it used most beneficially as a food for cattle, and from which human beings afterwards obtained wholesome food, by the human labour of only poor destitute pauper women and children, cultivating moss and moor land of little value.

XV. Therefore, setting aside all matters of historical evidence, not feeling myself able sufficiently to explain them, stating only

what was personally observed, as having actually been done by Major General Van den Bosch, respecting the use made by him of moss, in rendering poor land more productive of food, when aided with animal manure and the human labour of paupers, placed under his care by the Government of Holland, upon an undertaking attended with much personal labour and expense, in a free country, it may be expected that different opinions were formed. Into these discussions I do not enter, beyond stating that I observed a comparatively profitable result, but refer the reader to what has been said by General Van den Bosch himself, and by those who did not agree altogether with him in details. The title of his own work is: *Verhandeling over de mogelijkheid, de beste wijze van invoering, en de belangrijke voordeelen eener Algemeene armen-inrigting in het rijk der Nederlanden, door het vestigen eener Landbouwende Kolonie in deszelfs noordelijk gedeelte.* Door Js. Van den Bosch, General-Major, ridder der derde klasse van de militaire Willems-orde. Te Amsterdam, bij Johannes Van der Hey. 1818. And also a work opposed to him, entitled: *De permanente Kommissie en de Directeur der Koloniën van de in de noordelijke provinciën van het koninkrijk der nederlanden gevestigde maatschappij van Weldadigheid voor den Regterstoel van het Algemeen Gebraght; of iets ter Beantwoording van zekere in het iv nummer van het ii deel van de vriend des Vaderlands tegen mij of ten mijnen opzichte geplaatste aanmerkingen.* Door Mr B. D. G. Wardenburgh, Advocaat te Steenwijk. Gedrukt voor rekening van den Schrijver. Te Groningen, bij H. Eekhoff, Hz. 1828. The same gentleman has also written and published another work, entitled: *Vlugtige Waarnemingen, omtrent de ondernemingen der Mattschappij van Weldadigheid, in de Noordelijke Provinciën van het Koninkrijk der Nederlanden.* Te Koevorden, bij D. H. Van der Scheer. 1828.

Having thus referred the reader to those who have written in favour, and against the Benevolent Society of Holland, the record of what was personally observed is only mentioned, and, at present, that is confined to a fact, by which it appeared that Major

General Van den Bosch derived great advantage in making compost heaps of manure, formed of dry pieces of peat, with animal manure, which enabled him afterwards to fertilize poor soils, and to increase the crops.

And this fact is recorded as having been observed by me in Holland; but something similar appears to have been previously recorded, as having been observed in Scotland by Lord Meadowbank, who probably was the first person to investigate this species of manure on scientific principles, in a prize essay, which was distributed gratis by his Lordship, and of which an account will be found in a treatise written by William Aiton of Strathaven, on moss earth, page 162, a work published at the desire of the Highland Society, who also, in 1846, voted a gold medal to Capt. R. C. Moody of the Royal Engineers, for introducing into the agriculture of Scotland the Tussac grass, from the Falkland Islands, where it appears, also, that bogs of moss earth much abound, and where the above nutritious grass for the food of cattle, is found growing quite wild, as also in Staaten Island, near Cape Horn.

It seems, therefore, desirable to inquire, whether the same grass could not be largely introduced for cultivation in the bogs of Ireland, by human labourers, now destitute, but in every respect superior to the pauper children and labourers of Holland. That this object is desirable no person can doubt, and if it be practicable it appears to be worthy of trial. Free from all interested motives, these humble remarks are submitted for the consideration of those who may be able to make the trial, accompanied with a very sincere regret that my own health, having been injured by long residence in a tropical climate, at present is less able to give personal exertions in promoting the success of the experiment; and it is with great reluctance even these remarks have been intruded on any person, from the hasty and imperfect manner in which they have been printed, for the perusal of some one more capable to forward the benevolent object desired.

For the Government, it is assumed, will carefully consider the best mode by which the destitute and indigent in Ireland may be

temporarily supported and preserved from those temptations to crime which assail the abandoned and suffering, under the rage of want and the malignity of despair.

XVI. It is hoped that some good will be done by those having influence, during such public calamities as have fallen upon the nation, by carefully considering how differently the same class of evils has been borne by the poor and destitute of Scotland, amidst whom I have had much to observe and to praise for their conduct, during the severe suffering from scarcity of food in some places, by the agricultural poor.

It is, however, consistent with my personal observations in other countries, that except the plantain tree (*musa*) in Guiana, the potatoe, in a favourable soil, affords the greatest command over a given amount of food, for the mere subsistence of the human labourer. This fact had, however, been previously observed by Major General Van den Bosch, as well as the discovery of Lord Meadowbank, respecting the use of dry moss in the making of compost heaps of manure for improving the fertility of the soil, thereby rendering human labour more reproductive, in yielding any kind of food, either for mankind or for animals. Impressed, then, with the truth of a remark made in 1820, by Malthus, who had carefully studied every subject connected with population and its employment on reproductive industry, wherein it is stated, that a greater woe may befall the nation than it had ever experienced, if the purchase of any considerable portion of food of the people, instead of depending on the fertility of our own soil, should depend on the prosperity of a trade depending on foreign markets, and upon a material produced in foreign countries. This woe seems now to have reached Ireland, and our own nation.

All persons wishing to know the resources of the nation for the food of cattle, are aware of the great treasure of knowledge upon the subject which has been given to the public by the noble house of Russell, in the publication entitled, "*Hortus Gramineus, Woburnensis.*" With my personal observations on the success of stall

feeding cattle, by the late Mr Curwin, on his Schoose farm, near Workington, in Cumberland; and by General Van den Bosch, at his establishment for the poor in the province of Drenthe, in Holland, I eagerly looked for information respecting grasses growing on a moss or peat soil, and at page 137 found, relative to that on the round paniced cocksfoot grass, (*dactylis glomerata*,) “When cultivated on a peat soil, the produce was one sixth greater, but the grass was of an inferior quality;” and again, “It is deserving of particular notice, that the herbage of this grass, when suffered to grow rank or old, from want of sufficient stocking, contains nearly one-half *less* nourishment than that which is of *recent* growth; 64 dr. of the leaves, which had remained uncropped for four months, afforded only 20 gr. of nutritive matter; whilst the same quantity of leaves, two, or at most three weeks old, afforded 36 grains of nutritive matter.”

XVII. I also found in page 72, part i., of the 7th volume of the journal of the Royal Agricultural Society of England, a letter from the gentleman mentioned here, in page 30, as having been honoured with the gold medal of the Highland Agricultural Society, for having introduced the tussac grass (*dactylis cæspitosa*,) into Scotland; that it stated, the seed is collected in the Falkland Islands by a poor German settler, at the expense of 50s. *per* lb., for such as the poor man can collect; which, on many occasions, has proved to be very indifferent; therefore, the governor of the Falkland Islands submits for consideration, whether it would not be money well laid out, if an intelligent person were sent out to the Falkland Islands, to remain six months of the summer season in carefully collecting and preserving the seed in the best state for planting in Europe. I am well aware the present want in Ireland is for *immediate food*, but, I apprehend, any plan for this purpose would not be impeded by obtaining good seed to be planted on suitable land in Ireland, which, hereafter, might contribute in providing employment for human labour, in reproductive industry on the land, besides

the raising of potatoes. It is true that the tussac grass is three years in reaching its full maturity, but I have personally seen it cut in Scotland, and given as food to cattle, who preferred it to other grasses, whilst it was not many months old; and *I personally saw it cut, during the coldest day in the year 1846, in a green and succulent state, and ready to be cut again in March 1847, in a green, succulent, and flourishing state of growth.* Is it worth incurring the expense of procuring *good seed*, and of trying the experiment of planting it on certain soils in Ireland? when the report of a parliamentary committee in 1834, on the Irish poor, tells us, that in Great Britain, one-fourth of the total population only are labouring agriculturists, whilst in Ireland, two-thirds of the population depend on the soil for employment, and *whom we know to be now famishing.*

I have not been inattentive to the remedies suggested for this disproportionate supply of human labour, with reference to the extent of soil, and its remedy in emigration to our under peopled colonies, on which I may hereafter submit the observations I have made thereon, and on colonization; but at present I confine them to the tussac grass. In a narrative of a voyage to the Southern Atlantic Ocean, by the late Captain Foster, R.N., a fellow of the Royal Society, and distinguished for his attainments in science, in the 2d volume, at page 294, he states, “The *dactylis glomerata*, or tussac grass, grows in very large mounds, or tufts; the stems of it were as big round as the middle finger; and the lower parts being blanched, and having a sweet flavour, were eaten by us.” Captain Foster does not give any drawing of the plant, so that it might be compared with that given of the *dactylis glomerata*, in page 138 of the Hortus Gramineus Woburnensis, but from the above description, it is obvious, that though the plants, seen by each, may be cognate varieties, they are not the same grass which has been more correctly named as *dactylis cæspitosa*,\* and of which we may expect a more detailed account from Dr Hooker, who was the naturalist that accompanied the last naval expedition to the

\* Willdenow's Edition of Linneus Species Plantarum, Berlin, 1797, tom i., p. 407.

Southern or Antartic regions, and who was much esteemed by the Governor of the Falkland Islands.

But our first knowledge of this valuable grass as a food for cattle is given by the illustrious Bougainville, the circumnavigator of the globe, who, in vol. i. of his voyage, p. 102, thus notices the same grass, under a different name. When speaking of the Falkland Islands, he there says :—“ Tous les bords de la  
 “ mer, et des îles de l’interieur sont couverts d’une espece d’herbe,  
 “ que l’on nomma improprement *glayeuls* ; c’est plutôt une sorte  
 “ de *gramen*. Elle est du plus beau verd et a plus de six pieds  
 “ de hauteur. C’est la retraite des lions et des loups marins ;  
 “ ellenous servoit d’abri comme à eux dans nos voyages. En un  
 “ instant on étoit logé ; leurs tiges inclinées et réunies formoient  
 “ un toit, et leur paille seche un assez bon lit. Ce fut aussi avec  
 “ cette plante que nous couvrimes nos maisons ; *le pied en est*  
 “ *sucré, nourrissant et préféré a toute autre pâture par les bestiaux.*

Our own great circumnavigator, Captain Cook, had observed the plant, and called it “ sword grass,” but distinctly refers to the notice taken of it in the voyages of Bougainville. *Vide* Cook’s Voyages, second voyage, Jan. 1775.

XVIII. I am, however, most anxious, by my inquiries and observations, to produce by the influence of others, some practicable plan by which human labour employed on bog or moss land in Ireland may be made more reproductive ; and with this view, I would like Mr Curwin’s plan of stall-feeding cattle, combined with Lord Woodhouselee’s plan for converting peat moss into manure, and Major-General Van den Bosch’s measures for the employment of destitute paupers, to be carefully considered by those having the power and the inclination to turn such considerations towards some practical object beneficial to the nation, during the present time, when there is a strain so severe upon the resources of the nation, towards which I can afford little aid beyond my prayer for success.

I have referred to the greater degree of nutriment afforded by grasses at different periods of their growth, noticed in the Hortus

*Gramineus, Woburnensis*, pp. 137 and 138, a subject which appears to me, as an anxious observer of the improvements in chemical science, that the information given in that work could be usefully revised with the great aid at this time to be derived from recent chemical discoveries. I only refer to those of Dr R. D. Thompson of Glasgow, on the food of animals, &c., yet I am not ignorant of the valuable and extensive researches made by men of science in Edinburgh and elsewhere, which are not unknown to agriculturists; and it is to be hoped that in a new edition of the *Hortus Gramineus, Woburnensis*, additions may be made in this branch of the subject.

Merely to shew the importance of practical observations, I may here mention, that during my numerous inquiries respecting the cultivation of the tussac grass in Scotland, I was told of frequent failures attributed, and perhaps in many cases justly, to the bad quality or state of the seed; but on one occasion, on being shewn a plant obviously beginning to decay, and observing that a part which is saccharine to the taste, and pleasant to eat, had been drawn out of the tussac, I followed the injury, and found that the hole, having sweet juices, was filled by the larvæ of insects, which, on becoming worms, had lived on the root of the plant, and thus had destroyed it, but that when the tussac was cut clean off for green food to animals, the insects did not get entrance to deposit their eggs, and therefore, that the grass ought not to be grazed over, but cut for stall feeding; by which also, more poor people would be employed, and in a productive manner, where cattle were kept, to make more manure for improving the land, and increasing the quantity of milk to make butter, cheese, feed hogs, &c.

XIX. Having had opportunities personally to examine circumstances relative to human labour in England, and referring to some, given in a detail of my examination before a select committee of the House of Commons, in pages 63, 73, 83, and 85, ordered to be printed the 19th February 1828; referring also to the



late Sir R. W. Horton, (for whose memory I have the highest regard,) and to his address to the public on the condition of the operative and labouring classes, (printed in 1832, and published by Mr Lloyd of Harley Street, London,) being an able and well considered work respecting emigration and colonization, for information.\* It must now be open to the observation of any person, the increased arrival of Irish labourers into England, when a bridge may be said to have been made between the two countries by the mechanical power of steam. In certain kinds of human labour, not requiring much previous practice, and more particularly in large manufactory towns adjoining the coast opposite to Ireland, the Irish labourer, accustomed to a low scale of subsistence, on potato diet, must supplant the English and Scotch labourer, by being enabled to offer his exertions on cheaper terms, thereby driving the latter to seek the aid of the parish funds for support. In some places in the highlands of Scotland, where, for reasons already given, customs or habits are not quickly changed, and among the English cultivators of the soil it may seem that some also do not readily employ the cheap Irish labourer in agriculture, except during harvest. In such places are still preferred the old labourers on the farm, and they are fed on a higher scale of subsistence, whilst necessity compels the Irish labourer to live on poorer food. The impression was made on my mind, that ultimately the higher scale of subsistence of the English agricultural labourer must be reduced, if the introduction of cheaper workmen, as human labourers, be continued by the facility of passing from Ireland to England.

It is for those in authority to consider what may be the probable consequences; but it would seem that either English labourers must sink to the wretched condition of the Irish, or something must be done to raise the Irish labourers to a state of subsistence more approaching to that of the English workmen.

In considering how this is to be accomplished, we obviously must

\* \* In another work printed also by Mr Lloyd, the late Sir Wilmot Horton, under the letters of *Vindex*, answered the letters of *Anglus*, by the late Mr M'Cauley, on the subject of human labour, and its reproductive employment in the West Indies.

look for some means of making human labour more reproductive in Ireland, *by the means existing in Ireland itself, whether from the soil, or the ocean around it.* What may concern the superabundant population in some parts, and the questions of emigration or colonization, I refer to the preceding paragraph, and to the work of the late Sir R. Wilmot Horton, under whom, and the late Lord Bathurst, I had the honour to be employed, and to have opportunities for extensive observations, on human labour, with reference to these questions, connected with the reproductive employment of human labour of Great Britain.

From paragraph XIV., and pp. 27 and 28, 29, and other places, it seems desirable that the Irish land-owner should be encouraged to try practically whether the moss or bog land near the sea, now having little value, could employ more human labour reproductively, by means within their own power, to shew that it may be made to yield more vegetative nourishment, as, for example, by availing themselves of what was noticed in paragraph XVII., page 32, by the introduction into this kingdom of the tus-sac grass, for *the stall-feeding of cattle*, employing more human labour, on the system followed in Holland, and by the late Mr Curwin, by which, on ground now of little value, by the work of the most common labourers, other crops may be raised from poor soil, and increased in fertility, by resources within themselves in Ireland, by animal manure and peat, made into a compost.

Looking also to the sea and its resources, may not the landed proprietors on the sea-coast of Ireland submit some plan by which destitute human labourers may be more productively employed in catching fish, which, when good for food, may be either preserved by salting, or other modes, to be sent to a market at a greater distance by the use of ice, for example, packed with it to preserve it fresh till offered for sale, and use as food. That which may be caught in distant seas, under the protection of the flag of Great Britain, may also furnish reproductive labour, as part of that may be used for food and part to yield oil, &c., in which the unemployed human labour of the United States, *at a greater distance, is pro-*

*ductively employed, without having greater facilities than are open to Irish, or British subjects, under their own flag.*

I wish to avoid a subject in which I had the misfortune to differ from eminent and good men on the mode of employing human labour in part of our colonial empire. I was perfectly convinced that the time had arrived for the emancipation of labour from the *detestable* restraints of slavery.

XX. I had some experience in serving with seamen, though acting as a soldier ; and in active service, requiring human labour, I frequently felt that men accustomed to the management of ships of war during their long voyages, often had a decided advantage over their countrymen, whose labour as soldiers had been even accurately and carefully trained. Perhaps on such a case, the mention of names and places, to admit of further inquiry, should such be desirable, will be pardoned. In submitting these observations, made in distant countries, it occurs to my mind, that if a retrospect be made respecting the present and the past contributions to the national wealth of Great Britain and to her resources, for the naval defence of extensive coasts, in distant colonies, there is a falling off in the annual amount of national wealth received from those colonies situated in the West Indies, by a change in the efficiency of the human labour employed in the cultivation of the soil. The abolition of human labour, under a state of slavery, was called for by public opinion, and by the moral progress of human knowledge in the art of governing mankind, and the legislature of the nation decided the question between the *rights* of property, and the *duties* of humanity. I had suggested that emancipation should be preceded, or accompanied, by some efficient plan for securing human free labour to continue the profitable cultivation of the soil, and the management of machinery in the torrid zone. Some observations on the effect of employing human labour in our commercial marine, under some restraints connected only with discipline, upon which our naval defence must greatly depend, are submitted, under the impression that men of war must be

always manned and fought by men accustomed to the navigation of ships, in such voyages as will admit of human labour being instructed in their navigation. We know how soon France lost her maritime power when she lost her colonial possessions in Canada and the West Indies. I was therefore anxious to inform myself, how the rising marine power of the United States formed sailors by distant voyages. And hence I was led to examine the books of a company to which I had access, shewing the expense of the purchase of a ship, the hire of a crew, and subsistence for a *distant* voyage, by a company of individuals, in a port in the United States, where each person had furnished such an amount of capital as was convenient, which could be done as well in Ireland, for a commercial adventure, or speculation. But the risk of hiring the ship, and officers suitable for the intended service, with the human labourers actually navigating the ship, were entered as having shares in the adventure, receiving a certain portion of the profit, and the men to be fed in the mean time from the funds of the adventure, dividing the risk among many. In the books of such a company I observed near a million of fur skins were collected by the crew, at a distance from the United States' territories, to be taken to China, and there exchanged for goods, which afterwards yielded a great profit to all engaged in the adventure, by giving their capital, or their labour. In another adventure the cargo was varied, by cutting and loading with sandal wood, leading, however, to a result also profitable. But what surprised me most, was, that having secured an experienced captain, and some good seamen, many other persons were admitted who had *very little experience in navigation*, and who, consequently, received a less share of the profit than those having more experience as seamen.

In one case I found an adventure had been made to the Falkland Islands, which had also produced a profitable result, by the sale of oil, and the skins of seals taken upon islands not belonging to the United States of America, but whose seamen had boldly *encroached* upon the British territories, as had been done by the

United States' inhabitants in other cases. Deeply reflecting on the misery of Ireland, with able bodied men unable to obtain reproductive employment; many of the men embarked in such American adventures were persons who had only to use a club or shillelagh in the knocking of a seal on the head, and afterwards converting the blubber into oil to be put in a cask; a branch of human labour not requiring long experience; and much of the expense of subsistence was found in the new country that furnished the seals, such as fish from the sea, and great quantities of eggs from sea-birds, with wild cattle, hogs, &c. Now if the United States of America can from these places derive a remunerative profit for their *unemployed human labour in the United States*, there does not appear any good reason why the inhabitants of Ireland or Great Britain should not do the same. Some may object, the want of capital and experience in Ireland; but it seems to me both could be found, with encouragement from the active and liberal government which the nation possesses.

I observe in the periodical journals, that on the 13th January 1847, Mr Enderby, a name known for patriotism and enterprise, has called the attention of the public to the revival of the British South Sea whale fishery, which induced me to make some remarks on this form of human labour there employed on reproductive industry, terminating in augmenting the national wealth of Great Britain, instead of allowing other nations to deprive her of it. Seybert, an American author, in his statistical annals of the United States, particularly praises his countrymen for pursuing the whales to the Southern Ocean, and specially mentions the Falkland Islands, belonging to Great Britain, open therefore to the enterprise of labour and capital from Ireland. On the authority of an American gentleman, who had taken great pains to be correctly informed, I learned, that near to the south-east end of Newfoundland, is the *grand bank*, and more easterly is the *green bank*, upon which not less than 3000 small craft have been seen catching fish, and though three-fourths of the inhabitants of Newfoundland are Roman Catholics from Ireland, yet the majority of the fishing boats were owned

and navigated by inhabitants of the United States. From Seybert also we learn, that, in 1670, this fishing for cod was begun by the Americans from New England; and that in 1675, they employed therein 665 vessels, measuring 25·650 tons, and employed 4405 seamen, on remunerating wages. At the present moment this, and other fisheries, including the profitable deep-sea fishery of Ireland, are open to the destitute labour of that country, where thousands of the inhabitants are dying from famine, and want of employment. In the fifth general report of the Colonial and Emigration Commissioners, presented to both Houses of Parliament in 1845, at page 58, I find a letter to Lord Stanley, the colonial minister; from the governor of the Falkland Island, which says: “ In illustration of what I have stated respecting whale fishery offering a profitable pursuit to settlers in these islands, I take the liberty of informing your Lordship that five of a large size, from forty-five to sixty feet in length, have been captured, stranded in attempting to cross some shallows in the port ——;” again, “ very many whales are at this season in the sound, and other parts of these islands; a circumstance quite worthy of attention among a few in England.” And it is presumed that Mr Enderby’s address to public is the result, *but will Ireland make exertions to benefit thereby?* Or will any companies be formed, such as I have mentioned to be common in the United States of America?

XXI. It is a matter of historical record that, during the war, the British land and sea forces, under the command of the late General Sir George Beckwith, and the late Admiral Sir Alexander Cochrane, attacked and overcame the forces of France employed in the defence of Martinique, in the West Indies; when I observed that, before either the soldiers or sailors could get near to attack the main fortress, on which the main defence of the island depended, it was necessary for the fleet to have the command of the bay of Fort Royal, commanded by a fortified island, which could not be approached by assault from the shore or the ships, and therefore to be bombarded at a distance, by shells.

Being employed on the staff of the commanding officer of engineers, I had to perform active duties, which gave me the means, personally, of making the following observations. The naval officer commanding the portion of the navy allotted to this service, pointed out, in the face of a rock opposite the island fortified by the French, to command the anchorage of the bay, a hole in the face of the rock, and if a 13-inch mortar could be placed therein, the island could not long hold out against a bombardment. All agreed in this opinion, but the difficulty was, how, under fire from the enemy, the mortar and platform were to be got into the hole of the rock in question; all the best and experienced military officers having considered the project impracticable, the commodore, Sir George Cockburn, took it in hand, and, aided by his seamen, the soldiers and engineers soon effected the object; and Captain Gravenbrock, a Dutch artillery officer in the British service, assisted by myself and others, at day-light opened a fire from the mortar, and we soon had the pleasure to possess Pigeon Island, and to bring our own men-of-war into positions for ulterior operations; a well-armed fort, defended by a garrison of French soldiers, had next to be stormed, which was only a question of time to the soldiers, but it had once been stormed by boats landing armed seamen at the foot of the walls, with embrasures; and Sir George Cockburn proposed to do it again, and aid the soldiers in the enterprise, and which also succeeded; and the French soldiers being quickly driven from their guns, these were turned against the higher battery of Fort Desaix, which fired down upon us with a plunging fire. To defilade our position, make splinter proofs to protect the gunners in filling the French shells with the powder captured, was easy work for soldiers, but to have got over the walls from the boats, without the aid of the navy, was a difficult enterprise even for the best of British soldiers. It will perhaps be remembered, that it was the same admiral, Sir George Cockburn, who captured Washington, in the United States, whilst the bravest of British soldiers failed at New Orleans.

Reflecting on these, and many other cases, I formed an opinion, in which it is very possible I may be wrong, that in certain cases where human labour may be required in war, the experience learned by correct and rapid movements on parade, with even a perfect management of the firelock, does not so well prepare a soldier to perform some warlike services with which long experience on board a man-of-war, and a knowledge of peculiar duties, make the seaman familiar, though the soldier is not. In other branches of duty in war, requiring time for the human labourer to be drilled and disciplined, the soldier may perhaps excel the seaman, though both are equally brave.

XXII. Considering the extent and variety of the positions and climates of the possessions which this kingdom is legally bound to protect, most of them have long lines of sea-coast, and to protect such localities efficiently, the combined operations of vessels of war, having men regularly disciplined to the duty of maritime attack and defence, are absolutely necessary. Soldiers also are required to manœuvre on land with fire-arms, &c., such as are now used in war. Because experience has proved that a smaller number of such men, when properly disciplined and armed, are able to overcome a greater number of men, presenting themselves in undisciplined hordes.

If we look to the opinions of masters in the art of war, we find Vauban, for example, proposing to defend France against the neighbouring nations by a triple barrier of fortifications, whilst Buonaparte, also a master in the art of war, looking to his probable contest with maritime powers, expressed his wish to have *ships, colonies, and commerce, as the best means of creating the warlike force necessary to protect the shores which he had to attack or defend*, even with the aid of the brave and numerous legions of disciplined soldiers devoted to his standard. No person understood better than he did, *the necessity of having men accustomed to the various duties of a ship, to man and to fight ships in a maritime contest*, though himself a soldier.



The policy observed by the United States of America, a rising maritime power, is worth our observation, and that, whilst we sincerely profess our regard for that nation, which will be seen intent on increasing the possession of the sea or coast, to enable her to raise seamen, at the same time that she is paying the greatest attention to the form and construction of her vessels and the improvement of her artillery, from Gribeauval to Paixhans, as well as what may be learned from the practice of Great Britain, either in the improved form and weight of the guns, or in the form and construction of the ships to transport them, and the crews to fight them.

After the misery experienced from the want of reproductive employment for the human labourers in Great Britain and Ireland, it is obvious that our nation is in want of reproductive employment for them; and if we cannot give them employment at home, it is desirable to furnish it in colonies, under the same British government, rather than in foreign territories, who may believe their political interests to be opposed to those of Great Britain, or be of opinion that their republican form of civil government is superior to the monarchical form under which we, in Great Britain, have been born and bred, and which we honestly believe to be the best for an extended empire like the one we possess, with people of different races, religions, climates, and with different degrees of individual wealth; for with reference to the opinions of Mr Adams, in page 24, when Great Britain formed the basis of the government of the United States, it is to be observed, at that time there was a great equality among the inhabitants of America, then living nearly under the same circumstances, but which is not the case in our more extended possessions, now requiring a monarchical government to keep each in their proper position, under a just, and a mild limited monarchy.

These observations would not have been here recorded, had I not often heard respectable people foretelling the success of our rivals, from our supineness, and from having myself frequently observed the subjects of the United States ever striving to extend the power

of the republic over the sea-coast of the territories of other nations, and even encroaching on the fisheries of our British colonies, and sending their vessels on long voyages for the profitable employment of their own unemployed human labourers, whilst part of our own are actually starving, and inactive, with means existing in our distant possessions for the reproductive employment of them in fisheries, even though not seamen, yet able to knock a seal on the head, or to boil the blubber of a whale into oil, leaving the navigation of the vessel to regular seamen, making part of the crew, entering into such adventures ; and, in consequence, at the end of the voyage drawing a larger share of the joint profit, as mentioned in p. 39, in consequence of their experience in seamanship.

It is hence to be inferred, that the extent of our empire, and our strength as a maritime power, enable us to give reproductive employment to a greater number of our human labourers than we now do, if a little more attention was paid to the great resources, to be found in the following extent of our territory, viz. :

434,507	square miles	in Australia.
24,000	do.	in Van Diemen's Land.
45,000	do.	in New Zealand.
16,428	do.	in the West Indies.
374,457	do.	in North America.
200,000	do.	in Africa.
563,474	do.	in Asia, making in all,

1,657,866 square miles ;

with a long extent of sea-coast, and all under the protection of our nation, who, in Europe, occupies only 115,227 square miles, with a population of about 14,119,700 human beings, and many of whom are starving from want of food and employment, with the command over so much unoccupied land, and extent of sea coasts.

I am aware that political economists have said, provided the nett income of our government be the same, it is of no consequence whether the number of inhabitants be ten or twelve millions ; and

that if seven millions of men rather than five be employed, it would not enable us to add one man to our army and navy, or add one guinea to our receipt from taxes.

It is not my intention here to examine this opinion, whether it be correct or not, but merely now to observe, that if the welfare of human labourers living within British territories be the object of our government, and that in keeping up an army and navy, the object is to defend a community of British people so wide apart; and that the proper application of a national revenue is to supply the necessary expenses to be incurred for the protection and benefit of such inhabitants, as those living in our British colonies and possessions, the views above given, to some persons, may seem to be narrow and limited, if these widely separated and distant territories are actually to be inhabited by *British* people, whose persons and properties are to be efficiently and duly protected. To some persons, indeed, it may be of consequence whether the advantages of civilised society should be extended to them, as a portion of a greater, or a smaller number of inhabitants, and belonging to a nation having a greater or less degree of the power to defend them, which Great Britain may have, more than any other nation in the world.

It is even possible, that on this point, political economists of some name would not agree with Mr Ricardo. But, if such should be the opinion of the public, legally expressed by a majority in Parliament assembled, it is my duty, as a public servant, to obey, whatever my private opinion may be, even were I to think that the public opinion was erroneous. It is not many ages ago since mankind, almost universally considering the judgment of God to be the best way to decide any difference of opinion: that object was then obtained by an appeal to a trial by duel, yet the *same public opinion now is altogether changed*, and it would be impossible to get one sober-minded man to propose its adoption by our Legislature when legally assembled. I hope, therefore, to be pardoned for submitting observations, on the military policy of a rival maritime power, which is limitrophic to some of our distant colo-

nial possessions, affording to Great Britain the best means for supporting her naval power, and may also afford more reproductive employment for that portion of her population qualified for the profitable performance of that kind of human labour, more than we now at present avail ourselves of, whilst our neighbours are doing it with great advantage to themselves. I hope the observations now submitted, will not be considered as ungracious to the republic of the United States, or to their citizens, for their eleemosynary aid to our starving labourers, but who, if advantage were taken of our own great resources, they might be able to feed themselves *by their own labour*. Indeed, it is the main object of these observations to induce some one more able to endeavour to draw the attention of the executive Government to the reproductive employment of the human labourers under its protection in different parts of the world, and without being influenced by the mere opinions of political parties influencing the public opinion. Sir Isaac Newton first observed the apple to fall from the tree, and it was afterwards that he made his splendid calculations. From the justice of his observations, and the accuracy of his calculations, mankind now, in general, agree with him in opinion as to his theory. But at present we have not had any mind of that stamp, bearing on the popular theory about human labour, either to observe, or to calculate, so as to influence the public opinion; whilst we have had many observers and calculators, who, it is to be feared, have led the national opinion into erroneous conclusions, from entering into the question with previously formed convictions, and with strong feelings towards the success of party connections, instead of thinking solely about the mass of the poor human labourers of the nation, scattered in distant parts of the world, having upwards of a million and a half of square miles of soil to provide food for about fourteen millions of persons living in Europe upon about 115,000 of square miles, which extent of soil is computed to be equal to supply ample food for a much greater number of persons than inhabit it. Can the legal rights of property cause this effect? But the matter for consider-

ation would be, whether some legal provision could not be made, whereby the honest labour of the population could be adequately supported, with the aid of our distant possessions in land.

In one of our parliamentary commissions it has been asserted that an independent labourer could not get by his industry, on an average *per week*, more solid food than 122 ounces.

A soldier was allowed <i>per week</i> ,	. . .	168
An able-bodied pauper,	. . .	151
The suspected thief, <i>per gaol returns of Lancaster</i> ,		181
The convicted thief,	. . .	239
The transported thief,	. . .	330

*per week*. As I do not give the above on the personal authority of my own observations, but on that of the commissioners for inquiring into the operation of the poor-laws, I trust enough has been stated to justify the observations I have made, as calling for further investigation and inquiry respecting colonization.

XXIII. Many persons employed under the British government have shewn the encroaching disposition of the United States of America to extend their boundaries for encreasing their employment of seamen, but without being able to draw the attention of the British Government to the consequences thereof. Those who have visited the United States have also observed the conviction on the minds of many of the American citizens, that their naval power is more than a match for the British, in proportion to the number of their vessels of war, and that it is from fear the British always yield a point in dispute, rather than again encounter their navy. It will be more satisfactory, perhaps, to use the words of one of their highest authorities, though I am aware it will not make much impression on the public opinion of Great Britain. But in the United States I have heard popular orators saying to their auditors, that in a few years Great Britain will only be remembered for manufactories of Birmingham buttons and Whitechapel needles.

Everett in his work on America, says: " While our Continent

(i. e. that of the United States,) is yearly developing new resources of every kind, it is altogether probable that the British empire will be gradually brought within smaller dimensions by the successive falling off of its distant appendages, and will ultimately be reduced to its primitive possessions in the north-western coast of Europe. The United States having thus become the most populous and powerful nation of English origin, will naturally take the place of the British islands, as the commercial and political centre of the English settlements in every part of the globe; while the original, but then exhausted parent soil, will lose her present high standing as a constituent member of the great system of Christendom, and finally sink into a dependency on the continent."

Such are the views of Mr Everett, one of the leading public men in the United States, and one of the organs of its periodical literature. To shew that others have made similar observations upon the success of the encroaching disposition of the United States, I quote the opinion of a British officer considered to have talents for observation. Speaking of some disturbances from disputed boundaries, Lieut.-Col. Yule, R.E., says, they "excited no attention in England, and it is such marks of indifference in their fellow-subjects so discouraging to the colonists, on which the United States chiefly rely for final success in their negotiations with this country."—*Yule on the Disputed North Western Boundary of New Brunswick*, page 4.

But as the object of this work is rather to record observations, I shall proceed with those made in other countries, but to be considered as mere quotations, except that where the health of the troops are noticed, as I was also a close personal observer, as well as an intimate friend of the authors, the late Dr Jackson and Dr Ferguson, both inspectors-general of hospitals, serving in the same garrison with me, and whom I often accompanied to the hospitals to observe their mode of proceeding, and to learn something useful on a future day, to enable me to do my duty more satisfactorily, and when I had to be commandant, or

senior officer in a garrison, consisting of three regiments, composed of white and black soldiers, in a station in the West Indies where, during the war, I had also served with the same distinguished medical officers, before an enemy, so that I don't overstep my own convictions in expressing, and recording these observations. I trust therefore, in concurring with these gentlemen on certain points, I shall be entitled to such attention as would be given to a witness with a fair character.

Respecting the difference observed among races of men in warm climates, drawn from medical returns, I annex from those kept by Dr Jackson, when inspector-general of hospitals in the West Indies, the greater mortality which he observed between 1803 and 1814 in the white soldiers, as compared with the black troops, both doing duty in the West Indies.

YEAR.	Annual Proportion of Deaths to the Number of Troops.					
	WHITE.			BLACK.		
1803	1	to	$9\frac{1}{3}$	1	to	$34\frac{7}{11}$
1804	1	...	$5\frac{1}{3}$	1	...	$25\frac{1}{3}$
1805	1	...	$5\frac{1}{6}$	1	...	$16\frac{1}{2}$
1806	1	to near	9	1	..	$21\frac{1}{8}$
1807	1	to	$10\frac{1}{4}$	1	...	$17\frac{1}{7}$
1808	1	...	$6\frac{1}{3}$	1	...	$27\frac{3}{4}$
1809	1	...	$7\frac{1}{2}$	1	...	$22\frac{1}{8}$
1810	1	...	$4\frac{6}{7}$	1	to near	19
1811	1	...	8	1	to	$17\frac{1}{3}$
1812	1	...	$12\frac{1}{10}$	1	to near	22
1813	1	...	$14\frac{2}{3}$	1	to	$19\frac{1}{2}$
1814	1	...	$16\frac{3}{4}$	1	...	$23\frac{1}{10}$

XXIV. A reference to page 22 will show that I had been invited to examine one of the military cadets at the Military Aca-

demy of the United States, at Westpoint, and that, so far as I was able to judge, Mr Mahan acquitted himself very well; and he has since been made professor of military and civil engineering to that academy, and has published some good elementary works connected with his professorship; which at least shows the wish of the United States' government impartially to reward merit. Some questions I asked of the Committee, relative to the system of examining cadets, were answered promptly and with courtesy. On looking over the merit roll of the first class, I was shown that a fair record of the examination of the cadets which had been made out, and what follows, was to be obtained after a certain conventional number, previously agreed upon, to represent the highest degree of merit, for answering the questions to be asked, had been fixed prior to the commencement of the examination. The comparative merit was put down as follows:

	Merit in									
	Mathematics.	French.	Natural Philosophy.	Drawing.	Engineering.	Chemistry, Mineralogy.	Geography, Ethics, History National Law.	Tactics.	Conduct.	General Merit.
A. M.	297 $\frac{3}{4}$	99 $\frac{1}{2}$	292 $\frac{1}{2}$	55 $\frac{1}{2}$	300	200	198	193	292	1928
G. J. G.	259 $\frac{1}{2}$	84	280 $\frac{1}{2}$	39	300	176	182	193	294	1808
G. C. R.	226 $\frac{1}{2}$	33	292 $\frac{1}{2}$	57	275	182	190	193	299	1788

The five cadets highest on the list had their names distinguished by the mark of an asterisk, to be promoted to commissions, and their names to be inserted in the first army list, published in the army list, having the names of the cadets arranged in the order of their merit at the general examination. This information is given to the public, with the age at which each cadet was admitted into the academy, and in what state or province of the republic he was



born. Those found deficient have also their names published, but marked in the lists †, so that the friends of the cadets, and the candidates themselves, are much excited on the publication of such documents, and the fairness of the examination is considered by the public to be well secured by such publicity.

The United States keep up only a few regiments of infantry, as they pay most attention to their navy, yet they keep up a strong corps of officers in the engineer branch, and also a proportionably great number of regiments of artillery, taught as I have shewn. They consider their protection against the Indian tribes may safely be confided to the militia of the different states, who, at an early age, are all brought up to use the rifle gun.

This militia can be legally required to serve, of which the authorities in each state are to judge the necessity; and a certain number of the militia are brought up to the use of the artillery and cavalry manœuvres, and are officered by cadets who do not get commissions in the regular army.

So that, many of the militia officers may have been taught their military exercises at the academy, and when they return to their native state, become useful in drilling the militia, who, after all, appeared to me inferior to our colonial militia, and I feel certain, that one regiment of ours would overcome one of theirs; but I am equally certain that the people in the United States think otherwise, notwithstanding the proofs to the contrary when they tried to overcome us. It is only the nomade or pastoral people, like the Tartars invading the Chinese, or the Goths, Huns and Vandals invading the Romans, who had success against a people not better disciplined than themselves; added to which, our colonists, feeling proud of the British connection, if we only gave them due encouragement, will always defend themselves against the American States sympathisers, or under whatever name they may approach our borders. When Sir Francis Bond Head, as governor of Upper Canada, depended solely on the native militia for the defence of the province he was not disappointed.

The Indians, however, as huntsmen, may become dangerous

neighbours, with a knowledge of the use of firearms, in an uncivilized state of society; therefore the government of the United States have taken much pains to give the Indians within their territory some knowledge of the doctrines of the Christian religion, as the most desirable step to their advance in civilization,—as instruction and civilization are considered to go on best together. For other modes of protection the inhabitants of the interior of the United States are early taught the use of the rifle, and to take a good aim, giving confidence in actual conflict; but this qualification alone will not enable military bodies of men to overcome similar bodies or columns, disciplined to manœuvre, and to charge with the bayonet to force a position, or the pivot on which an enemy has to make his movements to turn. So that black men, drilled and disciplined with British forces, may soon be made to become good soldiers, when greater practice with ball cartridges are allowed; and a longer time for training, after the black man joins as a recruit, though then in a backward state of knowledge and civilization, under good officers and non-commissioned ones, taken from the British army at first.

Such troops being better adapted for a hot climate, as has been shewn, would be the cheapest and best to employ in many of our tropical garrisons, where the interior parts are often mountainous, with ravines, and so barred by difficult passes, that a few men can easily check the advance of a greater number, when armed only with the musket and bayonet. There are also places to be defended on account of vessels resorting thither for the purposes of trade; which suppose a town easily accessible to carts and waggons, with a low sea-coast, and valleys in the vicinity of ~~the~~ camps, oozy banks of rivers, and localities where endemic fevers generally prevail in an aggravated form with the white race of men, but from which the black man suffers less, and consequently he is better prepared for the attack or defence of such positions, as experience has proved; but it would be tedious to bring forward all the proofs, whilst a statistical table may be of easier reference, and equally satisfactory.

ANNUAL RATIO OF MORTALITY per 1000 Black Troops and Pioneers, serving in each of the following Colonies.

Fever, .....	8.5	3.2	8.6	4.8	.9	3.8	5.2	7.7	1.7	10.5	8.2	5.6	4.4
Eruptive Fever, .....	...	7.	...	...	1.8	.2	5.4	.4	.3	...	.5	1.7	...
Disease of Lung, .....	17.9	1.4	12.	9.5	13.	18.7	14.8	16.7	16.8	23.9	10.3	9.7	8.1
" " Liver, .....	.3	.8	1.	1.	...	.9	.9	1.6	1.7	.7	.4	.1	.8
" " Stomach and Bowels, .....	5.8	5.5	4.8	4.2	11.2	12.1	7.1	7.4	3.6	6.3	3.	6.5	2.8
Cholera Morbus, .....	...	...	...	...	...	...	...	...	...	...	...	...	3.
Disease of Brain, .....	3.3	2.8	2.	4.2	2.8	1.9	2.4	.4	1.4	1.4	.6	1.9	1.4
Dropsies, .....	2.4	1.1	4.3	2.1	2.8	3.1	2.6	1.2	.9	.7	3.	2.6	1.6
All other Diseases, .....	2.4	2.9	1.5	2.6	3.7	5.3	4.3	4.5	2.5	2.8	4.	12.9	7.9
TOTAL, .....	40.6	39.7	34.2	28.4	36.2	46.	42.7	39.9	28.9	46.3	30.	41.	30.
Ratio of Mortality among the Male Slave Population of all ages in these Colonies,	34.	30.	47.	36.	34.	31.	35.	35.	30.	30.	...	...	...

“ The above comprehensive table shews both the ratio of mortality among the negro soldiers employed throughout the West Indies, and the principal diseases by which it is caused. From this table it appears that fevers, particularly those of the remittent and intermittent type, which prove the great source of inefficiency and mortality among the white troops, exert comparatively little influence upon the blacks. Eruptive fevers, especially small-pox, are very fatal to that race, as two die out of every seven attacked. Fortunately that disease never prevailed generally throughout these commands, but its ravages were principally confined to Trinidad, St Lucia, and the Bahamas.”

“ Dr Jackson observes, and which is confirmed by the hospital returns, that the mortality among the British troops had diminished, and that the diminution had been greatest at Barbadoes, the locality most favourable to Europeans, from the density of population, with reference to space occupied, causing it to be the best cultivated, by having the greatest amount of human labour expended upon the soil. The average mortality here, compared with the nine years preceding 1814, had decreased two-thirds of the total amount, yet still leaving a greater proportion of deaths in the white, compared with the black troops.”

I personally observed on another occasion, that after having made a military reconnoitring report, with respect to a small French fort and battery upon one of the hills of Belair in Gaudaloupe, that I received an order to erect batteries to shell a small fort and battery, defended by a part of the 66th demi-brigade of French troops; and, whilst the means for this purpose were coming up, our line was drawn out preparatory for storming the fort. Lieut.-Col. Brown of a West India regiment, a brave officer, commanded the line, having a black regiment forming his left flank. On the extreme right, was the grenadier company of the 46th regiment, under Captain Campbell, placed almost in front of the work, then preparing to receive some heavy ordnance.

A few shots from the French troops in the small fort above our position, caused me to look around, when the enemy was seen

descending the hill to attack our position in line, and scarcely had their shot begun to tell thereon, when the black troops shewed unsteadiness on the left, and the grenadier company of the 60th regiment, composed at that time entirely of *foreigners*, except the officers, took to their heels, by which the enemy were encouraged still more to advance, till Colonel David Stewart of Garth, beloved by all who knew him, as the historian of the Highland regiments, honourably and familiarly known in Scotland. Col. Stewart soon got the fire of some of his light troops to bear on the enemy, and from which fire the brave leader of the French column, Captain Maurice, of the 66th French demi-brigade fell, waving his hat and urging his men to advance against our very small, but brave band of the grenadier company of the 46th or Devonshire regiment, under Captain Campbell, who, with his men, stood firm, giving and receiving a fire by which several fell on both sides, from the close formation of each.

The operations of the late Col. Stewart of Garth on the right flank, and the sight of the 25th Regiment of Royal Borderers under Col. Farquarson, at the double quick, hastening to cut off the enemy's retreat, made him retire, and before the little battery could be completed; but the enemies' position above the habitation, or estate of Monsieur Maillain, was soon afterwards in our possession, notwithstanding the bad conduct of the part of the British line on the left.

In justice to Captain Howard, commanding the grenadier company of the 60th, I may be pardoned for recording what I personally observed when the foreign soldiers took to their heels, notwithstanding Captain Howard did all he could to retain them. Drawing his sword, Captain Howard regained himself the ground which his company had previously occupied, and he kept walking backward and forward over that same space; though the enemy when advancing, and within range, could easily have killed him, yet they did not fire one shot at Captain Howard during his promenade. By an *arrête* of 15th February 1809, fifteen hundred black men

were attached to the 66th French demi-brigade in Guadeloupe; these companies were composed of grenadiers of 140 men each, and the black men were formed into battalion companies, armed as the other French troops, and clothed by the colonists of Guadeloupe.

With reference to human labour, and its employment in war, men may be shown, as differing in appearance, and as acquiring perfection, in a greater or lesser degree, in the use of physical force to accomplish certain services, and that those peculiarities of constitution, which affect the duration of life in different climates, also vary. We have yet to learn how virtues and vices may or may not be affected thereby. But, looking at the extent and the various climates and positions of the territorial possessions of this empire, and the small space which Great Britain itself occupies of the surface of the world, observations respecting the duration of the physical power of persons entrusted with the defence of distant British positions in hot climates, perhaps, may be worthy of the consideration of those in authority; without at this time submitting any special measure, or series of measures, but leaving the matters for the consideration of those not only better qualified, but who are entrusted with a higher degree of responsibility. These observations, under the present state of national distress, are merely submitted for consideration by an old and a loyal subject of the Queen, who believes all nations have had vicissitudes, but that the dangers have yielded to *active* exertions for their diminution or relief; and he trusts it will be the same in the present case. So that he concludes with a final observation.

XXV. Having devoted these few observations on human labour and its industry, I fear the remarks on military and naval services will be considered out of place from an officer even.

I therefore at present suppress many observations which I had made, as perhaps they might come better from a divine. But I could not peruse my Bible without learning that man was made to serve his Creator, and that, though the earth and the sea yield to

him abundance of food, yet he is required to make some exertions himself for his own subsistence ; for which, and all other mercies, man is required to love his Creator, who, in his revealed will, has ordered man to love his neighbour or fellow-man also ; and that both of them in remembrance of their creation, and that of the world, are to keep one day in seven holy, and ceasing from labour, to worship God, and to learn his divine will, is then their duty.

On this subject I have reflected much, but feeling quite certain that many persons would bring it better before the reader, I would wish to see it undertaken by them ; for with much misery around me, from want of subsistence, and want of employment amongst those actually able and willing to work, I still trust some means exist by which every one may be reproductively employed in some part of the British Empire.

THE END.















